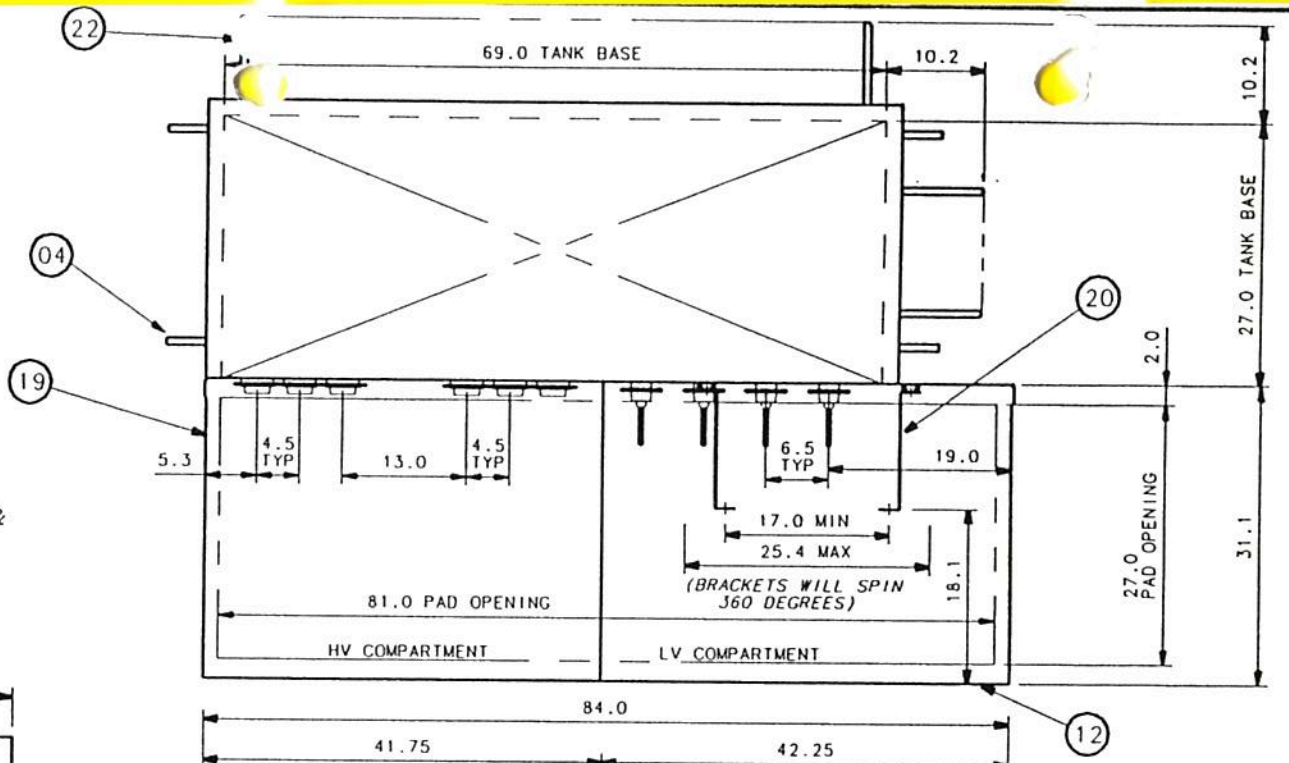
	DESCRIPTION
1	HIGH V[illegible]GE BUSHING WELL
2	LOW VO[illegible]GE BUSHING W/ 4-HOLE SPADE
3	TRAN[illegible]ER TANK BASE W/ JACKING & ROLLING FACILITIES
4	LIFT[illegible]UGS
5	BOLTED COVER W/ NUTGUARD
6	1.0" UPPER FILTER PRESS. CONNECTION AND FILL PLUG
7	1.0" DRAIN VALVE W/ SAMPLER
8	AUTOMATIC PRESSURE RELIEF DEVICE
9	PRESSURE VACUUM GAUGE PROVISION
10	MAGNETIC OIL LEVEL GAUGE
11	THERMOMETER W/ ALRAM CONTACTS & TERMINAL STRIP
12	NAMEPLATE
13	TAP CHANGER SWITCH
14	STEEL DIVIDER PLATE
15	REMOVABLE SILL
16	STAINLESS STEEL GROUND PAD
17	GROUND PAD & STRAP FOR XO
18	PARKING STAND
19	HIGH SECURITY CABINET
20	PANELBOARD PROVISIONS
21	BATONET FUSE W/ DRIPGUARD IN SERIES W/ CL FUSE
22	COOLING CORRUGATION
23	ON/OFF LOADBREAK SWITCH

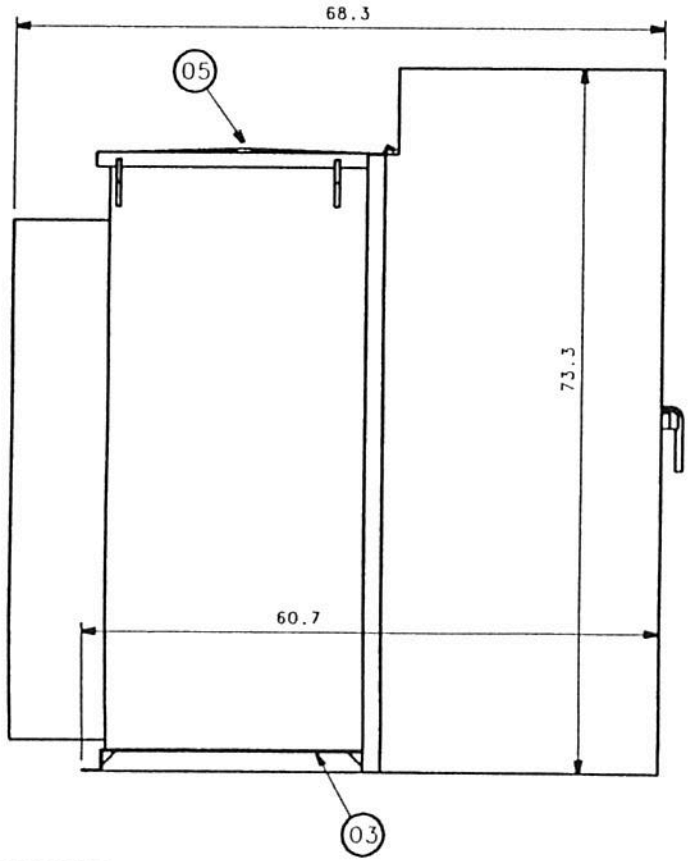
UNIT DESIGNED FOR 55 DEGREE C RISE, 50 Hz & 52 DEGREE C AMBIENT

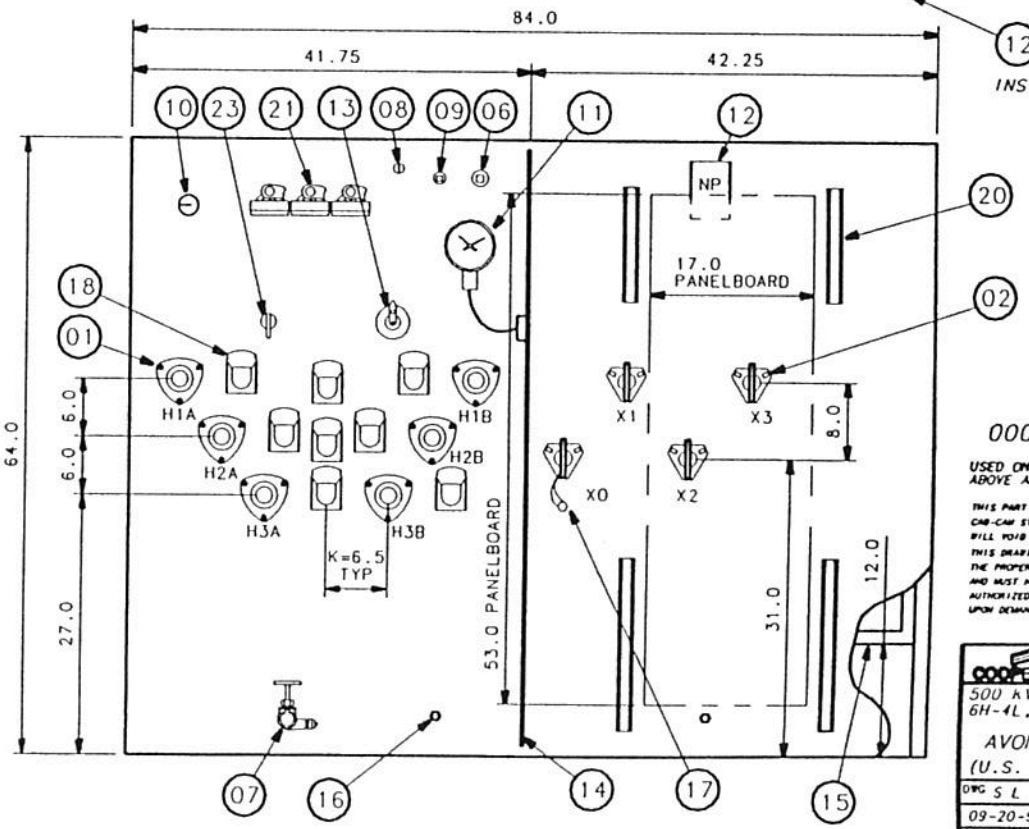
UNIT IS RTEMP FLUID FILLED

APPROXIMATE WEIGHT - 8358 LBS

UNIT PAINTED ANSI 70 GRAY







CERTIFIED BY
COOPER PWR SYS
TRANSF. PRODUCTS
WAUKESHA, WI
SIGNED: SLW
DATE 11-22-99

000B3P11W58A

USED ON CATALOG NUMBERS LISTED ABOVE AND ALL DUPLICATES.

COOPER TRANSFORMER PRODUCTS WAUKESHA, WI

500 kVA JPH TERRA TRAN
6H-4L,TC,OOS,BAY W/ CL FU

AVON INTERNATIONAL
(U.S. EMBASSY IN KUWAIT)

DWG	CHK	ISS
S L W	S L W	S L W
09-20-99	09-20-99	09-20-99

SCALE 0.10 PR 32966 -2

COOPER 3φ TRANSFORMER

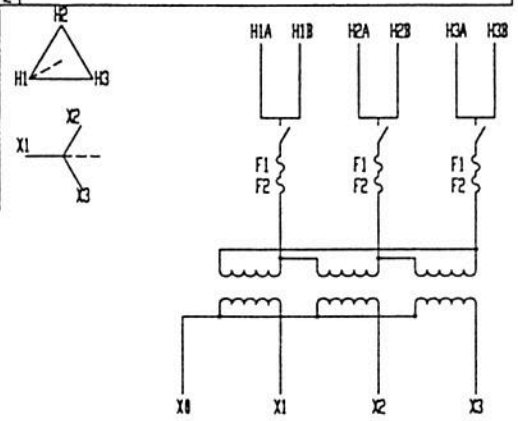
KVA 500	CLASS OA	CONT RISE 55 °C	50Hz
SER			
MAN SER CP	CAT 000B3P11W58A		
HV 11000			
LV 415Y/240	4.98%IZ @75°C	MFG DATE	

HV KV BIL	95
HV NEUTRAL KV BIL	—
LV KV BIL	30
HV/LV CONDUCTOR	AL / AL

WHEN MANUFACTURED CONTAINED LESS THAN 1 PPM PCB'S
CAUTION - READ INSTRUCTION MANUAL S210-12-1
UNIT DESIGNED FOR 52 DEG C AMBIENT

APPROX. WEIGHT IN LBS.	
CORE & COIL UNTANKING	2710
TANK & FIT	2591
FLUID: RTEMP GALLONS: 417	3057
TOTAL	8358

TAP	VOLTAGE	MAX AMPS
A	11550	25.0
B	11280	25.6
C	11000	26.2
D	10730	26.9
E	10450	27.6



MAX AMPS AT 500 KVA
%IZ IS @ BASE KVA & RATED VOLTAGE

1189602A0971-00

COOPER Cooper Power Systems

TRANSFORMER PRODUCTS
WAUKESHA, WI U.S.A.

CERTIFIED BY
COOPER PWR. SYS.
TRANSF. PRODUCTS
WAUKESHA, WI
SIGNED: SLW
DATE: 11-22-99

NOTES: 1) ACTUAL PLATE IS A NEGATIVE OF THE ABOVE DRAWING.
2) ACTUAL %IZ TO BE STAMPED IN AFTER TESTING.

NAMEPLATE MATERIAL: ALUMINUM

019106,011

			COOPER TRANSFORMER PRODUCTS WAUKESHA, WI U.S.A.
			PART NAME: NAMEPLATE
	PRINT DIST:	ANGULAR +/- 2°	DWG SLW / CHK SLW / ISS AMV
		* CRITICAL DIMENSION	07-19-99 07:42:10 07-19-99
			SCALE / DTS: 1189602A0971

Attachment to Submittal # 16021 A

Secondary Unit Substation (Cooper Transformer products)

COMPLIANCE STATEMENTS TO PROJECT SPECIFICATION

PAD MOUNTED TRANSFORMERS

1. Clause 1.3 B.1 — Pad mounted transformers unit with panel board installed in the secondary compartments as per Drwg. # PR-32966-I & Drwg. # 1189602A0971
2. Clause 1.4 C — Pad mounted transformer unit is built to IEEE, ANSI, CSA/CEA and NEMA standard. The manufacturing standard is ANSI/IEEE C57.12.26. The unit is not UL listed as UL does not list this type of product.
3. Clause 2.3 A/B — The unit paint is ANSI 70 Grey.
4. Clause 2.3 C — The unit designed for 55° Temp rise and 52° C. ambient temp.
5. Clause 2.4 — The unit is provided with dead front surge arrestor.
6. Clause 2.5 — The unit provided with ON/OFF load break switch and Bay-O-Net fuse with dripguard in series with CL fuse.
7. Clause 2.6 B — Insulating fluid is R-Temp, which meets NEC "less flammable" requirements.
8. Clause 2.6 C — Insulation temperature is 55° C. The specified 150° C rise is not applicable to liquid insulated transformer. This is a dry type temperature rise.
9. Clause 2.6 D — Basic impulse level is 95kV.
10. Clause 2.6 E — No lead tap changer providing +/-2-2½ % full capacity taps is provided. See drawings.
11. Clause 2.6 F — Transformer is liquid cooled.
12. Clause 2.6 G — Noise level will meet 56 dB requirements.
13. Clause 2.6 H — Thermometer with auxiliary contacts are being provided.
14. Clause 2.6 I — Impedance will be 5%.

PARTS LIST

COOPER ORDER #19106,001

CUSTOMER NAME : AVON INT'L (US EMBSSY KUWAIT)

CUSTOMER P.O. NO. : 10-34-11137

COOPER CATALOG NUMBER : 000B3P11W58A

ITEM	COOPER PART NO.	COOPER COST	LIST PRICE
HV BUSHING	2638372C01		
LV BUSHING	2690286D07		
LV SPADE	0704096B03		
TAP CHANGER	2289138A43		
DRAIN VALVE w/SAMP	0807297A04		
THERMOMETER	0895303G04		
LEVEL GAUGE	0891032A01		
PRESSURE RELIEF	0305040A34		
ON/OFF SWITCH	2205510A98		
BAYONET HOLDER	4011000B31		
BAYONET FUSE	4000353C12		
CL FUSE	3544125M61M		
BAY DRIPGUARD	4004352B02		
PNLBRD BRACKET	2085359A269		

Distribution Transformers

COOPER Power Systems

Electrical Apparatus
210-12

Three-Phase Pad-mounted Compartmental Type

GENERAL

Cooper Power Systems three-phase pad-mounted compartmental type distribution transformers are designed to withstand all environmental hazards. The transformers are designed to meet or exceed all applicable ANSI, NEMA, IEEE standards, and NEC® and CEA specifications.

All transformers are newly manufactured and are produced expressly to meet exacting customer specifications. Many configurations and accessories are available to meet a wide range of application demands. Transformers from stock are available for any emergency situations that may arise.

Cooper Power Systems three-phase pad-mounted transformers are available in live-front or dead-front designs. Cooper has proven field service with pad-mounted transformers rated 45-7500 kVA, and high-voltage ratings from 2400 volts up to 46,000 volts. Designs offered include; delta and wye configurations, with single- or series-multiple combinations with either taps (for de-energized operation), or no-taps. Step-down designs are also available.

Both radial and loop feed configurations are built to ANSI standards. The dead-front bushing configurations are in accordance with ANSI C57.12.26, live-front per ANSI C57.12.22.

Cooper Power Systems transformers are built to exceed ANSI C57.12.28 for tamper resistance and for corrosion resistance. Each transformer is painted using our state-of-the-art painting system which includes eight pretreatment stages and seven coating and curing processes.

Transformer cores are manufactured from the highest quality grain oriented silicon core steel. Unlike amorphous metal cores, silicon core steel is less susceptible to ferroresonance and exhibits increasingly greater efficiency above 50% loading. Rectangular wound core construction is used offering lower losses, low excitation current, and quiet operation. Rectangular stacked core designs are available for 1500 kVA and above.

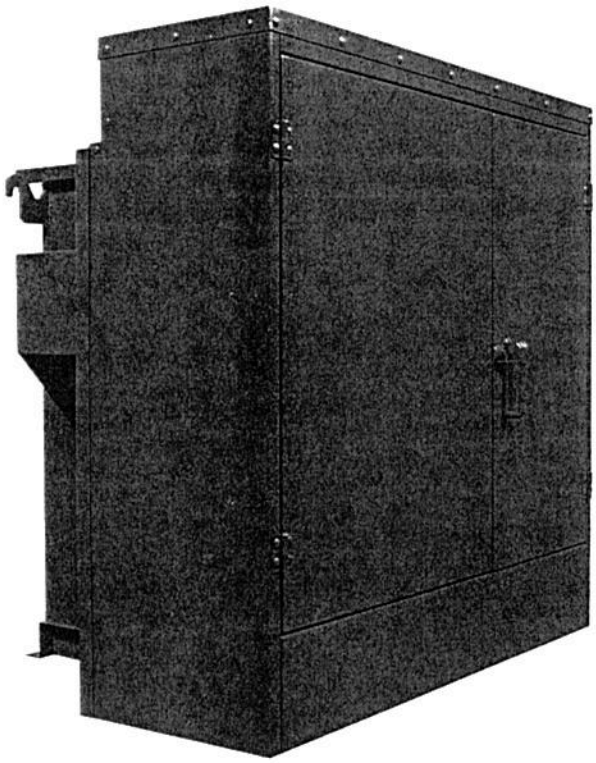


Figure 1.
Three-phase pad-mounted transformer.

The best reason to choose Cooper Power Systems three-phase transformers is that they have the lowest failure rate in the industry.

STANDARD CONNECTIONS & NEUTRAL CONFIGURATIONS

- Delta - Wye: For Delta-Wye configurations the low voltage neutral shall be a fully insulated X_0 bushing with a removable ground strap.
- Grounded Wye-Wye: For Grounded Wye-Wye configurations the high voltage neutral shall be internally tied to the low voltage neutral and brought out as the H_0X_0 bushing in the secondary compartment with a removable ground strap.
- Delta-Delta: For Delta-Delta configurations the transformer shall be provided without a neutral bushing.
- Wye-Wye: For Wye-Wye configurations the high voltage neutral shall be brought out as the H_0 bushing in the primary compartment and the low voltage neutral shall be brought out as the X_0 bushing in the secondary compartment.
- Wye-Delta: For Wye-Delta configurations the high voltage neutral shall be brought out as the H_0 bushing in the primary compartment. No ground strap shall be provided (line to line rated fusing is required).

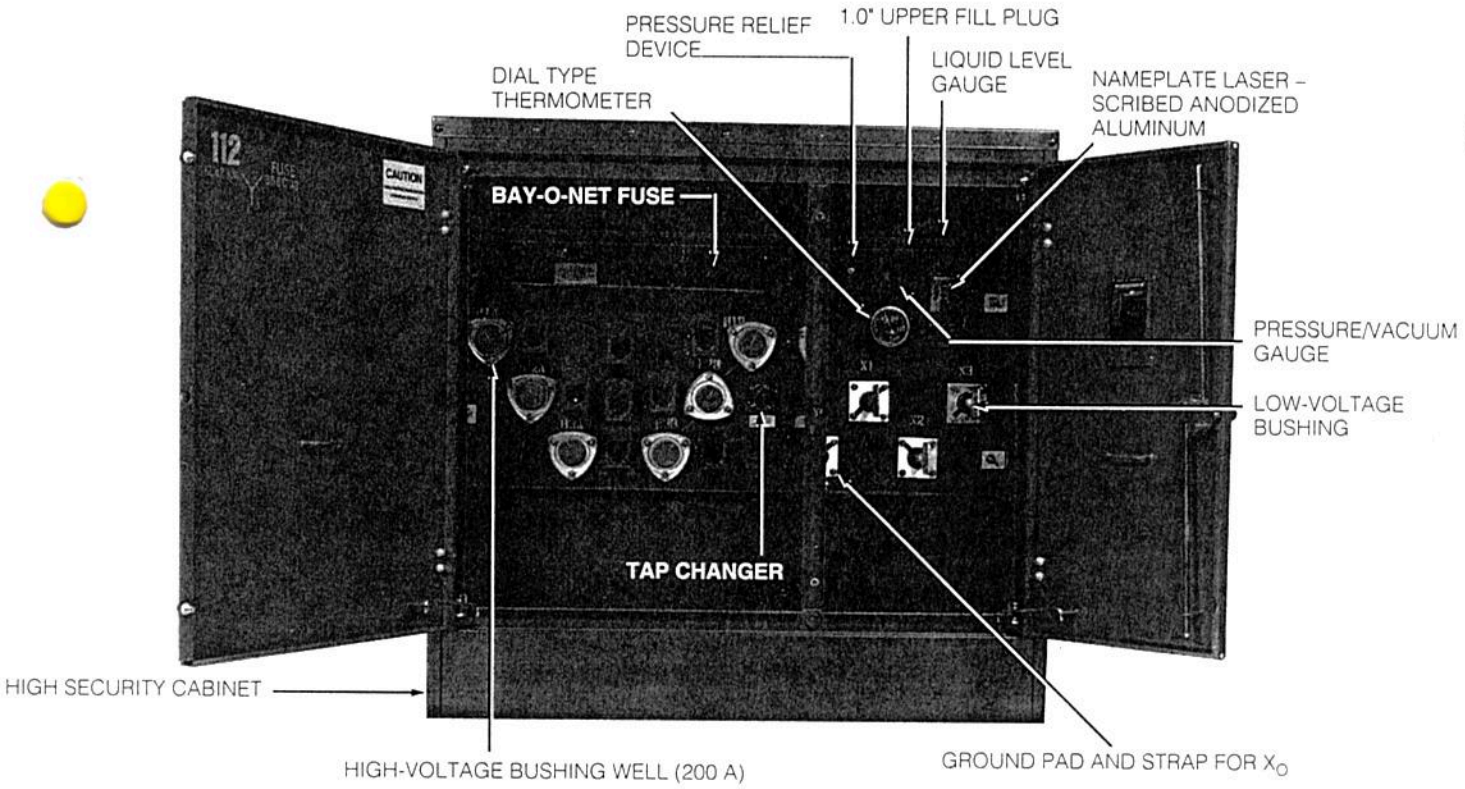


Figure 2.
Three-phase pad-mounted compartmental type transformer.

STANDARD FEATURES

- Bolted cover for tank access (45-1000 kVA)
- Welded cover with handhole (1500-7500 kVA)
- Three-point latching door for security
- Lightning arrester mounting provisions (live-front)
- Laser-scribed anodized aluminum nameplate
- One-inch drain valve with sampling device in low-voltage compartment (45-7500 kVA)
- One-inch upper fill plug
- Automatic pressure relief device
- 20" Deep cabinet (45-1000 kVA)
- 24" Deep cabinet (1500-7500 kVA)
- 30" Deep cabinet (34.5/19.92 kV)
- Removable sill for easy installation
- Steel divider between high-voltage and low-voltage compartments
- RTE® (15, 25 kV) 200 A (HTN) bushing wells
- RTE (15, 25, 35 kV) 200 A Integral bushings (dead-front)
- Copper electrical-grade wet-process porcelain bushings (live-front)
- Lifting lugs (4)
- Stainless steel ground pads (45-500 kVA)
- Stainless steel NEMA 2-hole ground pads (750-7500 kVA)
- Stainless steel cabinet hinges & mounting studs

OPTIONAL ACCESSORIES

- Liquid level gauge
- Pressure vacuum gauge
- Dial type thermometer
- R-Temp® less-flammable fluid and other environmentally desirable fluid options
- One, two, or three On/Off loadbreak switches
- 4-position loadbreak switch – V-blade switch, T-blade switch
- Low-voltage 6-, 8-, 10-hole spade
- Low-voltage 12-, 16-, 20-hole spade (750-2500 kVA)
- Low-voltage bushing supports
- RTE (15, 25 kV) high-voltage 200 A bushing inserts
- RTE (15, 25 kV) high-voltage 200 A feedthru inserts
- RTE (15, 25 kV) high-voltage 200 A (HTN) bushing wells with removable studs
- RTE (15, 25, 35 kV) high-voltage 600 A deadbreak one-piece bushings
- Hexhead captive bolt
- High-voltage warning signs
- Ground connectors
- Drain/sampling valve in high-voltage compartment
- Breaker mounting provisions
- Touch-up paint
- Stainless steel nameplate
- Stainless steel tank base & cabinet
- Stainless steel tank base & cabinet sides and sill
- Service entrance (2 inch) in sill or cabinet side
- Nitrogen blanket with bleeder and purge valve
- Delta-wye switch
- Auxiliary contacts for liquid level gauge
- Auxiliary contacts for dial type thermometer
- All copper windings
- Globe type upper fill valve
- Kyle® Vacuum Fault Interrupter (VFI)
- K-Factor transformer
- Factory Mutual approved transformer

TABLE 1
Three-Phase Ratings

Three-Phase 50 or 60Hz 65°C, or 55/65°C Rise	
kVA Available	
45	1000
75	1500
112.5	2000
150	2500
225	3000
300	3750
500	5000
750	7500

TABLE 2
Percent Impedance Voltage

kVA Rating	Low-Voltage Rating					
	≤150 kV BIL		200 kV BIL		250 kV BIL	
	≤600 V	>600 V	≤600 V	>600 V	≤600 V	>600 V
45-75	1.00-5.00	–	7.25	–	7.75	–
112.5-300	1.20-6.0	5.5	7.25	7.0	7.75	7.5
500	1.50-7.00	5.5	7.25	7.0	7.75	7.5
750-2500	5.75	5.5	7.25	7.0	7.75	7.5
3000-5000	5.75	5.5	7.25	7.0	7.75	7.5
7500	–	6.5	7.25	7.0	7.75	7.5

TABLE 3
Low-Voltage Ratings

208Y/120
240 Delta
240 Delta with 120 Midtap
480Y/277
480 Delta
600Y/347
Other Voltages Under 600V
Other Voltages with 45 kV, 60 kV, 75 kV and 95 kV BIL are also available[1]

[1] See Table 5 for ranges of KVA's with secondaries greater than 600 volts.

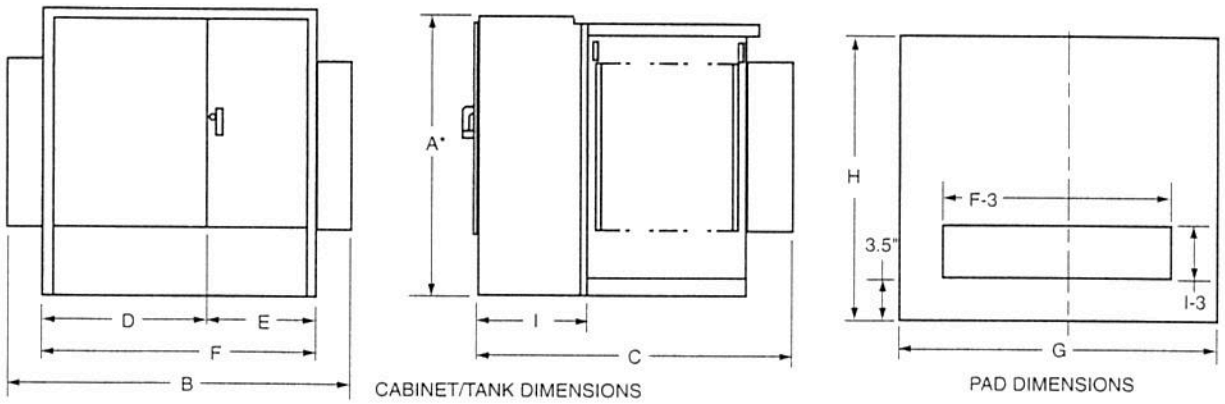
TABLE 4
Range of kVA and Voltage Ratings

High-Voltage Ratings (Volts)	KVA Rating		
	Low-Voltage Ratings (Volts) 208Y/120, 240	Low-Voltage Ratings (Volts) 480Y/277, 480, 600Y/347	Low-Voltage Ratings (Volts) >600
Delta or Wye			
2400	45-750	45-750	300-750
4160	45-1000	45-1000	300-1000
4800	45-1000	45-1500	300-1500
7200	45-1000	45-2000	300-2000
12,000, 12,470	45-1000	45-3750	300-7500
13,200, 13,800, 16,340	45-1000	45-3750	300-7500
22,860, 23,900, 24,940	45-1000	45-3750	300-7500
34,500	75-1000	75-3750	300-7500
Wye			
43,800	1000	1000-3750	1000-7500

TABLE 5
High-Voltage and BIL[2]

Transformer		Electrical Characteristics of the Completely Assembled High-Voltage Connectors		
		High-Voltage Rating		
High-Voltage Ratings (Volts)	Minimum BIL (kV)	Phase-to-Ground /Phase-to-Phase (kV)	BIL (kV)	60-Hz Dry One Minute Withstand (kV)
Single High-Voltage				
2400	60	8.3/14.4	95	34
4160	60	8.3/14.4	95	34
4800	60	8.3/14.4	95	34
7200	75	8.3/14.4	95	34
12000	95	8.3/14.4	95	34
12470	95	8.3/14.4	95	34
13200	95	8.3/14.4	95	34
13800	95	8.3/14.4	95	34
14400	95	8.3/14.4	95	34
16430	95	8.3/14.4	95	34
22920	125	15.2/26.3	125	40
26400	150	See note [3]	See note [3]	See note [3]
34400	200	See note [3]	See note [3]	See note [3]
34500	200	See note [3]	See note [3]	See note [3]
43800	250	See note [3]	See note [3]	See note [3]
4160GrdY/2400	60	8.3/14.4	95	34
8320GrdY/4800	75	8.3/14.4	95	34
12470GrdY/7200	95	8.3/14.4	95	34
13200GrdY/7620	95	8.3/14.4	95	34
13800GrdY/7970	95	8.3/14.4	95	34
22860GrdY/13200	125	15.2/26.3	125	40
23900GrdY/13800	125	15.2/26.3	125	40
24940GrdY/14400	125	15.2/26.3	125	40
34500GrdY/19920	150	21.1/36.6	150	50
Series Multiple High-Voltage				
4160GrdY/2400 x 12470GrdY/7200	60 x 95	8.3/14.4	95	34
4160GrdY/2400 x 13200GrdY/7620	60 x 95	8.3/14.4	95	34
4800 x 13200GrdY/7620	60 x 95	8.3/14.4	95	34
8320GrdY/4800 x 24940GrdY/14400	75 x 125	15.2/26.3	125	40
12470GrdY/7200 x 24940GrdY/14400	95 x 125	15.2/26.3	125	40
13200GrdY/7620 x 24940GrdY/14400	95 x 125	15.2/26.3	125	40
23900GrdY/13800 x 34500GrdY/19920	125 x 150	21.1/36.6	150	50

[2] Transformers are available in the standard ratings and configurations shown or can be customized to meet specific needs. Contact Cooper Power Systems for high-voltage connector information.



CABINET/TANK DIMENSIONS

PAD DIMENSIONS

Figure 3.
Transformer and Pad dimensions.

* Add 9" for Bay-O-Net fusing.

TABLE 6
Typical Dimensions and Weights[3]

65°C Rise	DEAD-FRONT - LOOP OR RADIAL FEED - BAY-O-NET FUSING[1] OIL FILLED -ALUMINUM WINDINGS										
kVA Rating	OUTLINE DIMENSIONS (in.)									Gallons Of Fluid	Approx. Total Weight (lbs.)
	A[1]	B	C	D	E	F	G	H	I		
45	50	68	39	42	26	68	72	43	20	150	2600
75	50	68	39	42	26	68	72	43	20	160	2800
112.5	50	68	49	42	26	68	72	53	20	165	2900
150	50	68	49	42	26	68	72	53	20	170	3350
225	50	72	51	42	30	72	76	55	20	180	3800
300	50	72	51	42	30	72	76	55	20	190	4450
500[2]	50	89	53	42	30	72	93	57	20	240	5700
750[2]	64	89	57	42	30	72	93	61	20	380	8200
1000[2]	64	89	59	42	30	72	93	63	20	480	10,100
1500[2]	73	89	86	42	30	72	93	90	24	570	13,950
2000[2]	73	72	87	42	30	72	76	91	24	640	15,000
2500[2]	73	72	99	42	30	72	76	103	24	760	18,850
3000[2]	73	84	99	46	37	84	88	103	24	780	19,000
3750[2]	84	85	108	47	38	85	88	112	24	800	19,500
5000[2]	84	96	108	48	48	96	100	112	24	930	29,400
7500[2]	94	102	122	54	48	102	100	126	24	1580	41,900

TABLE 7
Typical Dimensions and Weights[3]

65°C Rise	LIVE-FRONT - LOOP OR RADIAL FEED - BAY-O-NET FUSING[1] OIL FILLED -ALUMINUM WINDINGS										
kVA Rating	OUTLINE DIMENSIONS (in.)									Gallons Of Fluid	Approx. Total Weight (lbs.)
	A[1]	B	C	D	E	F	G	H	I		
45	50	64	39	34	30	64	69	43	20	150	2600
75	50	64	39	34	30	64	69	43	20	160	2800
112.5	50	64	49	34	30	64	69	53	20	165	2900
150	50	64	49	34	30	64	69	53	20	170	3350
225	50	64	51	34	30	64	73	55	20	180	3800
300	50	64	51	34	30	64	75	55	20	190	4450
500[2]	50	81	53	34	30	64	85	57	20	240	5700
750[2]	64	89	57	42	30	72	93	61	20	380	8200
1000[2]	64	89	59	42	30	72	93	63	20	480	10,100
1500[2]	73	89	86	42	30	72	93	90	24	570	13,950
2000[2]	73	72	87	42	30	72	76	91	24	640	15,000
2500[2]	73	72	99	42	30	72	76	103	24	760	18,850
3000[2]	73	84	99	46	37	84	88	103	24	780	19,000
3750[2]	84	85	108	47	38	85	88	112	24	800	19,500
5000[2]	84	96	108	48	48	96	100	112	24	930	29,400
7500[2]	94	102	122	54	48	102	100	126	24	1580	41,900

[1] For fusing with Bay-O-Net only, see Cooper Power Systems catalog section 240-45 or 240-46. (Add 9" to dimension "A" for Bay-O-Net fusing.)
[2] Available with Kyle Vacuum Fault Interrupter for overcurrent protection. (Minimum height 72" in.)
[3] Weights, gallons of fluid and dimensions are for reference only, and not for construction. Please contact Cooper Power Systems for exact dimensions.

CONSTRUCTION

Core

High efficiency rectangular wound core design offers low excitation current, low losses, and quiet performance. Cores are manufactured in either five-leg or triplex configurations from precision-cut single-turn laminations of high quality, grain oriented silicon core steel. Fully annealed after cutting and forming the lamination joints are precisely stacked, virtually eliminating gaps in the corner joints. These cores are less susceptible to ferroresonance and exhibit lower loses above 50% loading than amorphous cores. Stacked core designs are also available.

Coil

The coils are made compact, rigid, mechanically strong, and electrically balanced with impedances in accordance with ANSI C57.12.26. The wound coils are hydraulically pressed to squeeze the wire and interlayed paper tightly together, then baked to bond the windings into a solid compact coil with excellent dielectric and certified short-circuit strength when tested to ANSI C57.12.90. Extra mechanical strength is provided by diamond pattern, epoxy coated paper insulation, used throughout the coil, with additional adhesive at heavy stress points. The diamond pattern distribution of the epoxy and carefully arranged ducts provide a network of passages through which cooling fluid can freely circulate. The primary coil is manufactured from heavy varnish or paper insulated aluminum or copper wire. Round wire is flattened during winding to provide greater surface contact with the insulating paper and a higher space factor to make a compact, efficient design. The secondary coil is manufactured from full width aluminum strip whose edges are carefully finished to prevent burrs and sharp points, insulated with epoxy-diamond paper between every layer of the conductor. The dielectric insulation levels are per ANSI C57.12.00.

Insulating Fluid

Cooper Power Systems transformers are available with standard electrical grade mineral insulating oil or other dielectric coolants manufactured by Cooper Power Systems. The highly refined oil is tested and degassed to assure a chemically inert product with minimal acid ions. Special additives minimize oxygen absorption and inhibit oxidation. To ensure high dielectric strength, the oil is retested for dryness and dielectric strength, refiltered, heated, dried, and stored under vacuum before being added to the completed transformer. R-Temp fluid, manufactured by Cooper Power Systems under strict quality control for optimum transformer cooling characteristics, provides higher dielectric strength than mineral oil. The special formulation is less-flammable as defined by the National Electric Safety Code, as well as non-toxic and biodegradable. Envirotemp® FR3 fluid, the fluid used in Envirotran® transformers is a fire resistant, natural ester-based fluid. Envirotemp FR3 fluid offers the advantage of a seed oil-based dielectric coolant with food grade additives, in addition to increased fire safety when compared to mineral oil. R-Temp and Envirotemp FR3 fluid can be used in a pad-mounted transformer next to buildings or inside buildings with suitable containment provisions.

Vacuum Processing

A very low level of moisture is a key factor in the dielectric performance and service life of a transformer. Cooper has paid extensive attention to moisture removal and it has resulted in improved reliability and the industry's longest transformer life expectancy. Cooper's vacuum process simultaneously heats and dries the transformer, removing any moisture in the components.

Circulating current, established by energizing the coils under shorted conditions, heats the coils from the inside. Any moisture turns to a gas which is pulled from the chamber by the vacuum. Once the transformer is thoroughly dried, degassed insulating fluid is added while still under vacuum to assure maximum penetration of the fluid into the coil and insulation, minimizing air pockets that can lead to internal corona failure.

Far superior to hot air dryout systems, Cooper's vacuum processing is carefully controlled to monitor actual residual moisture levels. This contrasts with simple timing according to theoretically calculated process cycle time, which is subject to variations in effectiveness due to environmental and system variances. The process maximizes dielectric strength and virtually eliminates the potential for insulation damage.

Tank

Tanks are formed of precision cut cold-rolled steel. Tank bases are constructed to permit rolling in any direction perpendicular to a tank wall. Heavy-duty lifting hooks and jack pads are provided. All tanks are pressure tested to withstand 7 psig without permanent distortion.

The interior of the tanks are painted a light gray to enhance visibility of internal components under oil. For 1000 kVA and below a bolted tank cover is standard. This permits thorough cleaning and complete painting prior to assembly, reducing the potential for contamination due to welding. Also, the tank cover is removable for field service without contaminating internal components and insulating oil. Tank covers are domed to facilitate moisture run-off. High-strength cover bolts are enclosed and concealed by a wrap-around cover guard, accessible only from inside the cabinet.

Cabinet

Patented high security features exceed ANSI requirements. The interlocked low-voltage compartment door has a three-point latching mechanism. Flush-fit doors with concealed latches and heavy-duty stainless steel hinges resist prying or probing. Doors are secured by a captive silicon bronze pentahead bolt.

A 20", 24", or 30" deep cabinet with removable sill is standard depending on kVA rating and accessory configuration. Full height 120° open doors have stops to hold them in the open position for ease of service.

Finish

An advanced multi-stage finish process exceeds ANSI standards. An eight-stage phosphate wash pretreatment assures coating adhesion and inhibits corrosion. Three-step electrodeposited and oven-hardened epoxy primer (E-coat) provides a barrier against moisture, salt, and other corrosives. Polyester powder coat (P-coat) provides resistance to abrasion and impact, and the urethane final coat adds ultraviolet protection.

THREE-PHASE VFI TRANSFORMER

The VFI transformer combines a conventional Cooper Power Systems distribution transformer with the proven Kyle® Vacuum Fault Interrupter (VFI). This combination provides both voltage transformation and either transformer or loop overcurrent protection in one space saving, money saving package.

The three-phase VFI transformer with transformer protection protects the transformer and provides proper coordination with upstream protective devices. When a transformer fault or overload condition occurs, the VFI breaker trips and isolates the transformer, leaving the feeder uninterrupted.

The three-phase VFI transformer with loop protection protects the loop or downstream section of a feeder. When a fault occurs downstream, the VFI breaker trips and isolates the fault, leaving the transformer load uninterrupted.

The three-phase VFI breaker has independent single-phase initiation, but is three-phase mechanically gang-tripped. A trip signal on any phase will open all three phases. This feature eliminates single-phasing of three-phase loads. It also enables the VFI breaker to be used as a three-phase loadbreak switch. Because the VFI breaker is resettable, restoring three-phase service is faster and easier.

R-TRAN™ FM APPROVED TRANSFORMER

Cooper Power Systems' R-Tran Transformer is FM Approved for indoor locations. Factory Mutual Research Corporation's approval of the R-Tran transformer line makes it easy to comply and verify compliance with the 1996 National Electrical Code (NEC) section 450-23, Less-Flammable Liquid-Filled Transformer Requirements for both indoor and outdoor locations.

FM Approved R-Tran transformers offer the user the benefit of a transformer that can be easily specified to comply with NEC, and makes FM Safety Data Sheet compliance simpler, while also providing maximum safety and flexibility for both indoor and outdoor installations. Because the "FM Approved" logo is readily visible on the transformer and its nameplate, NEC compliance is now easily verifiable by the inspector.

Three-Phase Pad-mounted R-Tran FM Approved transformers from Cooper Power Systems are manufactured under strict compliance with FMRC Standard 3990, and are filled with FM Approved R-Temp fire-resistant dielectric coolant.

TESTING

Cooper performs routine testing on each transformer manufactured, utilizing our unique Automated Test Program. This integrated, computer controlled, series of tests provides all routine test data in real time, enabling virtually instant generation of certified test reports. The tests include:

- Insulation Power Factor: This test verifies that vacuum processing has thoroughly dried the insulation system to required limits.
- Ratio, Polarity, and Phase Relation: Assures correct winding ratios and tap voltages; checks insulation of HV and LV circuits.
- Resistance: Verifies the integrity of internal HV and LV connections; provides data for loss upgrade calculations.
- Routine Impulse Tests: The most severe test, simulating a lightning surge. Applies one reduced wave and one full wave to verify the BIL rating.
- Applied Potential: Applied to both high-voltage and low-voltage windings, this test stresses the entire insulation system to verify all live-to-ground clearances.
- Induced Potential: 3.46 times normal plus 1000 volts for reduced neutral designs.
- Loss Test: These design verification tests are conducted to assure that guaranteed loss values are met and that test values are within design tolerances. Tests include no-load loss and excitation current along with impedance voltage and load loss.
- Leak Test: Pressurizing the tank to 7 psig assures a complete seal, with no weld or gasket leaks, to eliminate the possibility of moisture infiltration or oil oxidation

Design performance tests include:

- Temperature Rise: Our automated heat run facility ensures that any design changes meet ANSI temperature rise criteria.
- Audible Sound Level: Ensures compliance with NEMA requirements.
- Lightning Impulse: To assure superior dielectric performance, this test consists of one reduced wave, two chopped waves and one full wave in sequence, precisely simulating the harshest conditions.

We are constantly striving to introduce new innovations to the transformer industry, bringing you the highest quality transformer for the lowest cost. Cooper Power Systems Transformer Products is working towards ISO9001 compliance, emphasizing process improvement in all phases of design, manufacture, and testing. We are so dedicated to introducing new innovations and technologies to the transformer industry we have invested millions of dollars in the Thomas A. Edison Technical Center, our premier research facility in Franksville, Wisconsin. Headquarters for the Systems Engineering Group of Cooper Power Systems, this research facility is fully available for use by our customers to utilize our advanced electrical and chemical testing labs.

COOPER Power Systems
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COOPER POWER SYSTEMS - TRANSFORMER PRODUCTS
Electrical Test

Print date: 03/23/2000

Customer Name: AVON INTERNATIONAL
Customer PO #: 10-34-11137
Catalog #: 000B3P11W58A
Primary Voltage: 11000D
Secondary Voltage: 415Y/240
Taps: 105.0/102.5/100.0/97.5/95.0
Cycles: 50 Hz

CPS Order #: 19106
Phase: 3
Type: Padmount
KVA: 500.0
Class: LNAN
Rise: 55 degrees C
Insulating Fluid: R-TEMP Fluid

Note: Core Loss data corrected to 107 degrees C (52 degrees C Ambient).
Load Loss data corrected to 107 degrees C (52 degrees C Ambient).

Serial #	Sequence #	Test Date	Core Loss	Load Loss	Total Loss	IRX	IZ	IX	IR	Reg @ .8	Reg @1.0
CP9937015244		10/22/99	1226	3915	5141	0.44	4.56	4.49	0.72	3.32	0.82
CP9937015245		10/23/99	1200	3893	5093	0.40	4.58	4.52	0.72	3.34	0.82
	Qty: 2	Averages:	1213	3904	5117						

All transformers manufactured using insulating fluid containing less than 1 PPM PCB. ASTM D4059 Test Certification available. All of the transformers listed have received and passed the following tests: Continuity, Ratio, Leak, Polarity and Phase-Relation, Routine Impulse, Induced Voltage, and Applied Voltage in accordance with ANSI standards C57.12.00, Latest Edition.

Certified by: Terri Marks

Ship Date: 11/03/1999
Invoice#: 90194781